

MARCH 1961



Magazine

The *ICI Magazine*, price twopence, is published for the interest of all who work in ICI, and its contents are contributed largely by people in ICI. Edited by Sir Richard Keane, Bt., and printed at The Kynoch Press, Birmingham, it is published every month by Imperial Chemical Industries Limited, Imperial Chemical House, Millbank, London, S.W.1 (Phone: VICTORIA 4444). The editor is glad to consider articles and photographs for publication, and payment will be made for those accepted.

POINT of VIEW

BONDS, POOLS AND PROSPERITY

By Mark Abrams



VOLUME 39 NUMBER 291

The I C I Magazine

MARCH 1961

Contributors



J. E. Davies, *ICI Taxation Controller*, describes himself as "a fallen chemist." Having taken arts subjects to intermediate degree standard he changed to science, taking honours in chemistry and becoming an Associate of the Royal Institute. He forsook chemistry for Inland Revenue and became Inspector of Taxes. He made a partial recovery in 1929 and joined ICI Taxation and Rating Section, becoming its head in 1938 and generally responsible for ICI taxation affairs. He has been Taxation Controller since 1943.



Derek Clements is a member of the Overseas Department of Paints Division. Before joining ICI he spent two years as a national serviceman flying Meteor jets, where he won the Broughton Trophy at Flying Training School. He then went up to Oxford, where he read zoology and rowed for his college. Interests include archaeology, and collecting stamps and crested silver spoons. He is also a member of the Royal Observer Corps and president of the Paints Division Amateur Film Unit.



James Taylor is ICI Group E Director and chairman of Yorkshire Imperial Metals, the Imperial Aluminium Company and Associated Light Metal Industries.

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FRONT COVER: *Waterfall on Coniston Fells in the Lake District*, by C. B. Chilton formerly of Cassel Works, Billingham
(Dacora Dignette, Kodachrome film, 1/50 sec. at f6.3)



At some time or other every post-war British government has attempted to check private expenditure on consumption. It was argued that if consumers would hold back for a while a larger proportion of our resources could be used for producing capital equipment, and this in its turn would eventually lead to a greater output of goods and services to be enjoyed by the ordinary household.

For the most part, governments have depended on taxation and credit restrictions to bring about this restraint on the part of the consumer, but in 1956 something novel was attempted. In that year Premium Bonds were launched, and it was hoped that through this national lottery it would be possible to bribe people to spend a little less on consumption.

In the first full year of the scheme the average British family invested slightly over £4 in the bonds. But apparently the certainty of never losing your "stake" money and always standing a chance to win a small prize held little attraction for the man in the street. Throughout 1959 the takings of the lottery organiser (i.e. the State) fell steadily. Accordingly, last April changes were announced so as to offer people a more exciting gamble: larger prizes, more prizes, and a shorter period to wait between buying a bond and taking part in the draw for prizes. The results so far can hardly be described as a spectacular success. For the second half of 1960 the net investment in Premium Bonds by the average British family amounted to approxi-

mately 36 shillings; in other words, the whole 17 million families between them had been induced during the half-year to save £30 million in the form of Premium Bonds. At this stage in the nation's finances any holding back by consumers is to be welcomed, but figures of this order are not likely to solve the problems of the Chancellor of the Exchequer.

And their modesty is all the more disappointing when one considers what has been happening to the nation's privately run lotteries—i.e. the football pools. These have gone from success to success. In 1956 the average British family sent off to the pools—either directly or through a syndicate—slightly over £4; in 1959 this rose to nearly £6. There was a further increase in 1960, and during that year punters "invested" well over £100 million in "backing" their coupons.

From the Chancellor's point of view this particular boom is fine. Thanks to the Betting Duty, the football pools this financial year will transfer about £35 million from the pockets of private consumers to the coffers of the Treasury. Then the Post Office skims off a few million pounds (for handling all those postal orders), and the promoters take their share. So that, all in all, when punters put £100 million on the football pools about half that amount is withdrawn from their pockets and ceases to be spent by them on consumption goods. From this point of view the football pools do a far better job for the Chancellor of the Exchequer than do Premium Bonds—and they have the additional advantage that he

does not have to give the punters back their money.

To the non-punter it may seem strange that people should prefer pools to bonds; the former offer the certainty of losing half your money and the very slight possibility of winning an enormous prize; the latter offer the certainty that all your money will be returned to you, plus the slight possibility of winning a modest prize. Some psychologists have offered an explanation for this particular piece of human irrationality. They claim that punters in filling up a pool coupon are under the delusion that their skill as experts on football form materially affects their chances of winning. Nothing, in fact, is further from the truth and indeed recent publicity about winners who boasted of their ignorance should help to shatter this delusion where it still exists.

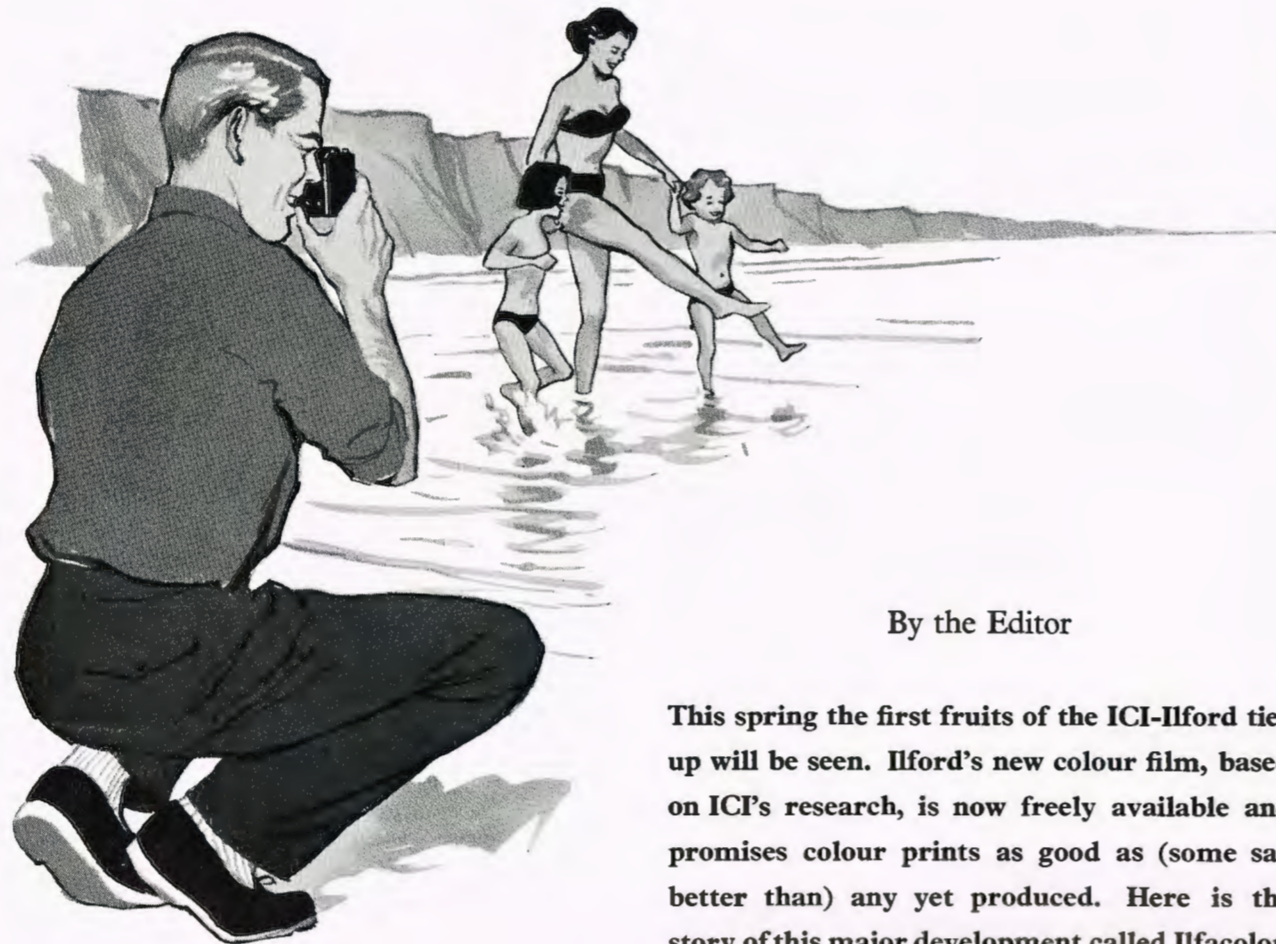
It seems to me more likely that they enjoy the excitement of gambling on sheer luck—especially when this is linked with small stakes and the frequent announcement of a few huge prizes.

If this is so, perhaps the time has come either for the Government to encourage private football pools energetically or else to modernise Premium Bonds so that the State National Lottery could really be used effectively to siphon off consumers' spending power. We could then start to cope with our inflation and export crises by having the man in the street hand over more and more of his money cheerfully and even eagerly to the Government.

The opinions expressed in this article are not necessarily those of the Company

THE ILFORD CHALLENGE in COLOUR PHOTOGRAPHY

New colour film process now in full swing



By the Editor

This spring the first fruits of the ICI-Ilford tie-up will be seen. Ilford's new colour film, based on ICI's research, is now freely available and promises colour prints as good as (some say better than) any yet produced. Here is the story of this major development called Ilfacolor.

Colour Illustrations by Michael Leonard

IT is something rather special: the new Ilfacolor film, which last year—in small quantities—for the first time became available to the public, and which this year with the Ilford laboratories geared up to a higher capacity is on sale in unlimited supplies.

Already two out of every nine photographs taken in Britain are in colour. Most of these—over three-quarters—are colour transparencies, cumbersome to look at and demanding special equipment for showing at their best. How much easier to look at colour prints! If only (people said) they were good enough,

the tones accurate enough, the values true enough. This is just what the new Ilfacolor has achieved. It gives a negative from which colour prints can be reproduced in quantity, with colour values every bit as realistic as those of the single transparency.

This marked advance did not come about overnight, as the result of a flash of inspiration on the part of some dome-headed hero of a science-fiction film. It was the culmination of years of effort by the research departments of Ilford and ICI, and—most important of all—the result of the link-up between these

companies in August 1958. The history of the period of experiment shows that Ilford was producing the colour transparency film twelve years ago, while ICI has been working for the past fourteen years on the colour-negative film, which they first marketed for professional photographers as recently as 1958. Since the link-up, Ilford has taken over the manufacture and marketing of the ICI type of film.

ICI's struggle to perfect colour prints began as a challenge to the Agfacolor technique of the mid-forties. Agfa—their methods have advanced technically since then—concentrated on producing pictures using a simple "unmasked" negative film. The question arose: to mask or not to mask? Was it necessary to use masks, those aids to colour blending, those rectifiers of the deficiencies of work done by available dyestuffs?*

ICI decided it was. Masks were needed if a reasonable degree of accuracy of colour reproduction was to be attained. But the trouble was that Kodak had made the same decision and already had a useful start in work along the same lines. Nevertheless ICI stuck to its decision; and it should be noted that not only do Kodak and Ilford use built-in colour masks today, but that they are the only two firms in the world to adopt this technique. And today Ilfacolor shines forth as the triumphant justification of this policy. It is as good as, some say better than, any other colour

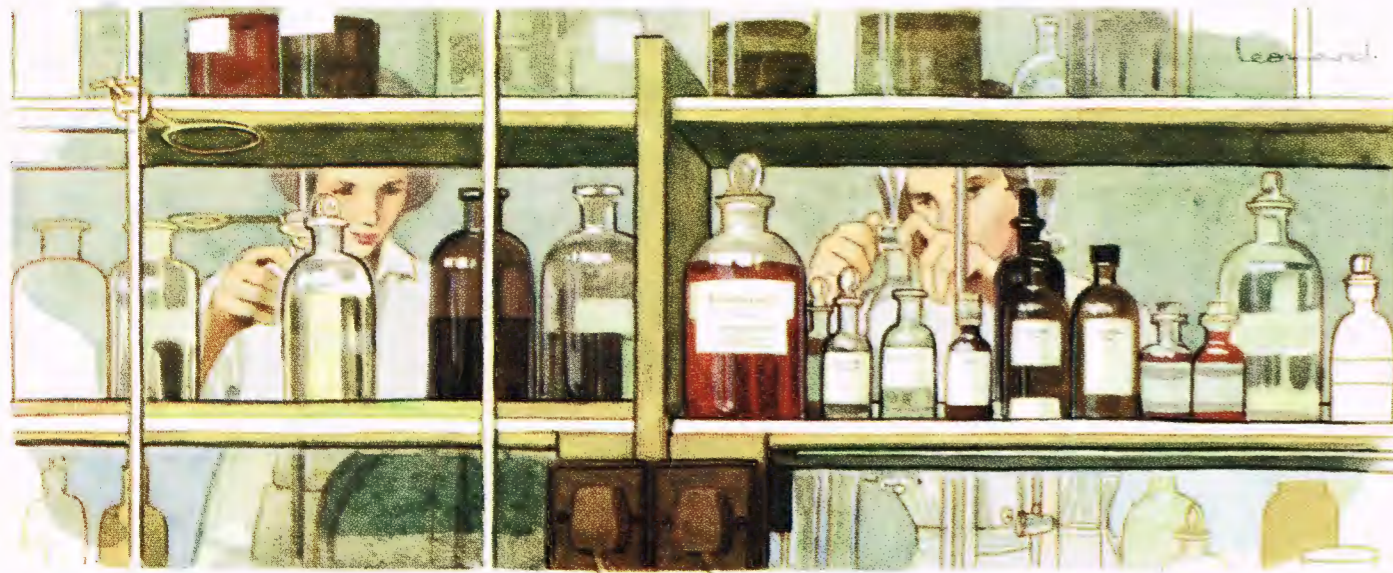
* "Masking" is a word of scientific jargon commonly used in the colour film world. It is a label that covers a complicated process of colour correction, in this case additions to the light-sensitive emulsions coated on the film. There are three layers of emulsion, each sensitive to a different range of colours.

film sold in Britain. It shows that with a great research team on the job a good start is not the beginning and end of a race.

Research, of course, into the highly sophisticated chemical problems of colour emulsions costs a great deal of time and money. But the pay-off may be just round the corner. Big stocks of Ilford film have now been built up, and a full-scale advertising campaign is being launched in the spring. Half-page advertisements in the national press will soon make their impact. Ilfacolor is the answer to the ordinary man's wish for a colour photograph, and there is no doubt that Ilford are only on the threshold of a big expanding market.

The ordinary man may be forgiven if sometimes, in





Correct chemical composition of processing solutions is a basic essential for producing high-quality colour pictures. As the solutions are used, they change chemically, and these changes have to be compensated. Samples are taken to the laboratory at regular intervals to ensure that replenishment has kept the solutions up to scratch

a very human way, he is inclined to believe that he is discriminated against when the youngest daughter's portrait of Aunt Augusta somehow lacks the subtle colour blending of the Mona Lisa or the light and shade effects of an early Rembrandt. You have surely met the know-all type who informs you that the processing people can manage the basic colours all right—skies are blue, roses are red, and fleshtints are Aunt Augusta to the life—but they haven't quite learned how to master the pastel shades. Well, in some ways he is right, in some ways wrong. The reproduction of

delicate tones is and always will be a challenge to the processing department. Their answer to the problem rests basically on the most careful control of variables like temperature, processing times, solution composition, and other more complicated factors.

But the brash know-all ought to go to see that department at work, for his own sake. There he would discover that care is taken to ensure that if he has taken a good picture it emerges at its best; while if he has taken a bad picture it is at least as good a bad picture as science can make it.



A key man is the process worker responsible for mixing the chemicals of processing solutions correctly. His work is in turn checked by the chemical control laboratory



Control bridge. Keeping a careful watch on the control instruments, this process worker checks solution temperatures and rates of solution flow. If they are wrong, he makes the necessary adjustments



Colour transparencies are also handled at Ilford's Basildon Laboratories. They are here being fed into an automatic mounting machine

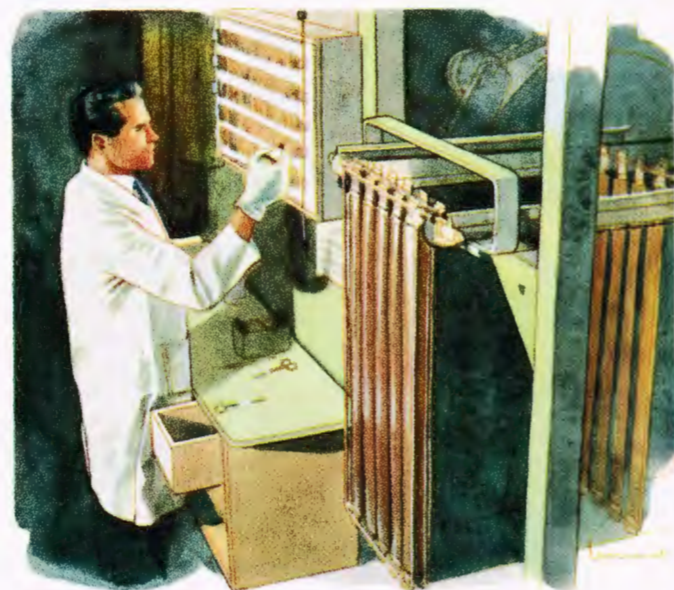
Mark well, a colour-film processor cannot control his work by looking at the picture that will emerge in the end. He cannot know what hardships may have been suffered by the layers of green, red and blue emulsions (the light-sensitive coatings of the film) which bring colour to the image; nor can he know the details of the exposure. He can only make sure by the use of a most elaborate set of controls that a standardised exposure on a selected emulsion will yield the best results possible from his processing technique.

Rotatory Routine

Watch him at work: one set of controls ensures that every Ilfacolor negative gets the proper treatment; another that the paper for Ilfacolor prints is receiving the attention it deserves.

Having checked the controls, the next step is to watch the processing department at work. The simple chemistry of producing a coloured picture from a square inch of emulsion-coated celluloid has remained much the same for the last 25 years. But you have to know more science than the next man to understand it at its simplest.

Those to whom scientific explanations read like pure Chinese will note that film and print processing is as rotatory a routine as, say, folding magazines or cooking chickens on a revolving spit. Films are not handled separately. They are stuck together in one long length and sent on their way through the developer,



Checking the negatives as they come from the processing machine before being sent to the printing department

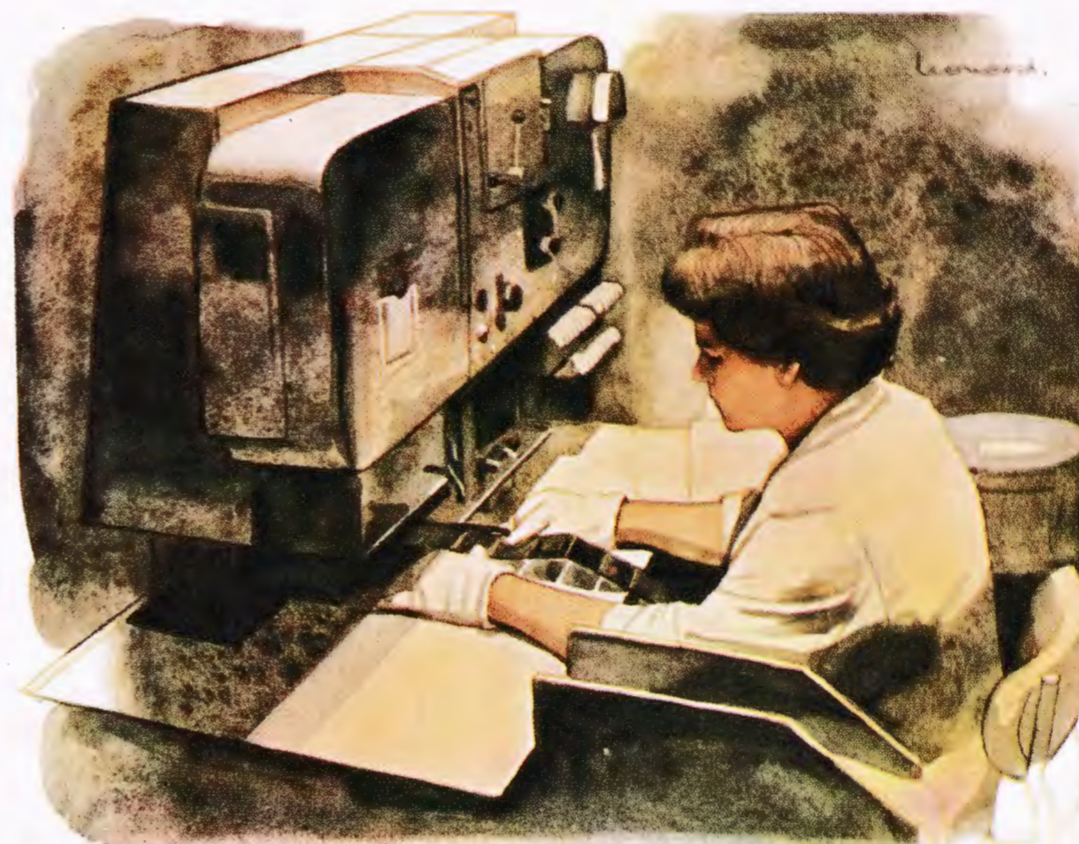
up the ramp to be dried off, separated, and printed for the customer. There is one exception: roll films for box cameras. With a thickness of three thousandths of an inch they present special problems of fragility, and are therefore given individual treatment in what is known in refreshingly unscientific language as the dunking machine.

So it goes: the moment your infant son took his first steps at Eastbourne last week is perpetuated for ever. Out it comes from the tank, to be dried and printed: to be yours for ever—not just one transparency as in the reversal process, but a colour picture to be printed again as often as you like.

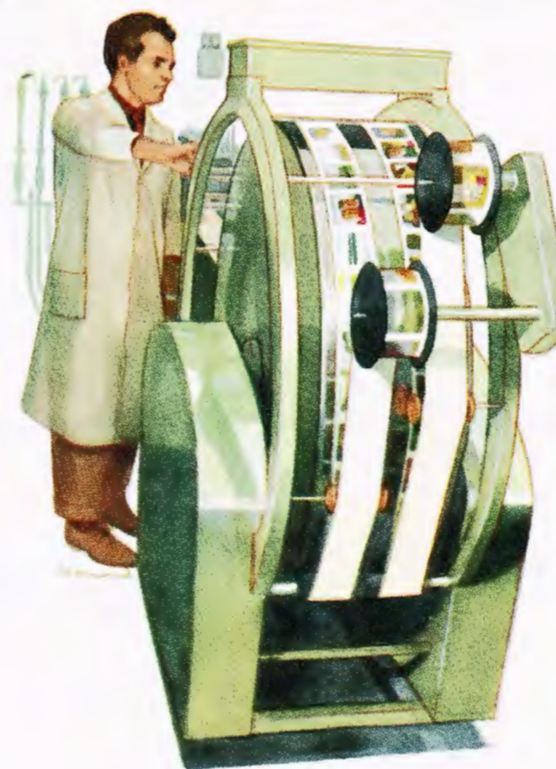
The Future

For that is the challenge of Ilfacolor. With its coming, the perpetuation of the moment, sweet as it was fleeting, is brought nearer. It is, in its way, a magic specific to prolong youth and happiness. And, because it has this great potential, the future is with colour photography. It will no doubt become less costly as the years go by—today a colour print is about four times as expensive as a black-and-white. But every year more and more people are taking colour photographs: already in America 40% of all taken are in colour.

The importance of the Ilford challenge is that it makes available to this country this newest and finest form of colour photography at its highest potential.



Colour printing. Under subdued orange light this girl feeds a strip of negative into the printing machine. She presses a foot switch, and the correct exposure is automatically made by means of photoelectric cells linked with a complicated electronic device



Drying colour prints on a heated rotary drum



Checking colour prints before cutting and despatch to the customer

People and events . . .

Developments in Cheshire and the Argentine

A NEW factory for Pharmaceuticals Division in Cheshire and a 'Terylene' project in the Argentine were the subjects of the two main news releases of the past weeks. Pharmaceuticals Division is to spend over £4 million in the next few years on improving its research, production and distribution facilities. Negotiations are in progress for a site for a new factory at Macclesfield, Cheshire, near Alderley Park Research Laboratories. In due course some 2000 people will be employed at this factory. The concentration of the Division's activities in Cheshire means that the Linlithgow factory will have to be closed in two or three years' time.

'Terylene' in Argentina

THE Company is also to proceed with a £1½ million project to manufacture 'Terylene' polyester fibre in the Argentine. The proposal is that the plant should be built by Duperial Argentina, a subsidiary of ICI, at their new industrial centre in San Lorenzo alongside the chemical and plastics plants already under construction there. It will be designed to have an initial capacity of two million lb. This latest project would bring ICI's anticipated investment at San Lorenzo over the next three years up to almost £10 million.

Curtains for the Queen

THE Ahmedabad office of ICI (India) played a small but valuable part in the preparations for the Queen's recent visit to that city. Refurbishing the royal suite at Government House for the occasion, the Governor's wife, the Begum Nawab Mehdi Jung, decided to redye the magnificent brocade curtains to a rich magenta shade. The

work was entrusted to one of Dyestuffs Division's important customers, and they in turn consulted ICI (India)'s Ahmedabad office on the matter. As a result, **Mr. K. V. Dave** had the delicate task of redyeing the curtains to the required shade. He used ICI 'Procion' dyes for the job and his work met with the warm approval of the Begum, who expressed her appreciation of the service rendered.

Magadi Milestone

ICI's outpost in Kenya, the Magadi Soda Company, reached its golden jubilee on 26th January. To mark the occasion an entertainment was held at Lake Magadi for the 3000 residents of all races who live and work there. Our correspondent reports that, anxious not to miss any of the fun, the crowd started to roll up two hours before the show was due to begin.

This duly opened with a superb display of formation flying and aerobatics by three RAF Hawker Hunters. Other items included music from the Kenya Police Band (who also beat Retreat), conjuring by Mr. Jasper Maskelyne, and a hair-raising act from "Professor of Magic" K. H. Trevedi. The Professor was buried four feet deep in a pit under a great heap of

charcoal which with the aid of paraffin was set merrily alight. To everyone's relief he successfully survived 15 minutes of this heat treatment.

After tea there was a spectacular firework display, followed by dancing to a section of the Police Band in the African Members' Club which was kept up until the early hours of the next morning.

On the evening of the 28th in Nairobi a cocktail party was held at the New Stanley Hotel, to which were invited some 200 guests representing many Government departments, the railways, shipping, business houses and the professions with which Magadi has had close connections over the years.

Crystal Lake

LAKE Magadi is a vast natural storehouse of alkaline crystals, 12 miles long and 2 miles wide. Because it has no outlet and the climate is so hot, evaporation of the water occurs, leaving behind a solid, thick crust of crystals, called trona, which is strong enough to bear the weight of a man. It is calculated to contain something like 100 million tons of soda.

The first European to set eyes on the lake was a German explorer, Herr Fischer, in 1883, but it was not until 1904 that Lake Magadi, by then in British territory, was surveyed in detail. The Magadi Soda Company came into being in 1911; but it had a chequered career, caused in part by competition from rival companies, including Brunner-Mond, and in 1923 the company went into liquidation. A number of reconstruction schemes were proposed, among them one sponsored by Brunner-Mond. This was ultimately adopted, and in 1924 the

PEOPLE

We announce with regret that **Mr. Stewart Leith**, a director of AE & CI Ltd., died in Johannesburg on 20th January. Mr. Leith was AE & CI's technical liaison officer in London from 1946 to 1949.

It is announced with deep regret that **Mr. J. W. Simpson**, chairman of ICI (Pakistan) and of the Khewra Soda Co., died on 24th January in this country, where he had been on sick leave since last August.

Mr. Frank Scullion (Nobel Division) has had two long service presentations in recent months. One was his 30-year Company award, the other a silver award for 40 years' membership of the Sheet Metal Workers' Union.

Mr. A. May, works engineer at General Chemicals Division's Chance and Hunt Works, has been elected as one of six laymen to represent the Birmingham diocese in the House of Laity of the National Assembly of the Church of England.

Mr. Charles Brown, 47-year-old fitter at Plastics Works, Billingham, has been awarded £105 and **Mr. Bill Robinson**, an electrical foreman in Engineering Works Construction Section, £110 for ideas submitted under the Company's Suggestion Scheme. Mr. Robinson's award is the biggest yet made at Billingham.

Mrs. Mace, a cartridge inspector in the Cap Priming Department at Metals Division, and her daughter have been selected to swell the ranks of a choir which will sing at the dedication of a new Mormon church in London, in the Albert Hall, and in halls and meeting-houses up and down the country. A nucleus of members of the famous Salt Lake City Tabernacle is coming to Britain for the tour, the rest of the choir have been picked from members of British Mormon churches.

Two Derbyshire police teams who were trained by **Mr. Arthur Waring**, a Tunstead Quarry (Alkali) Division employee, met with success in the recent open first aid competition at Pontefract. One team gained second place in the team test, and the other won awards for the best No. 1, No. 3 and No. 4 in the individual tests, in which 160 competed.

Mr. Bill Tyler, commissionaire at the Castner-Kellner works of General Chemicals Division for the past 14 years, has retired after nearly 34 years' service. His portrait (painted in connection with an ICI advertising campaign in the 1940s, "Portrait of an Industry") has been hung in the Royal Academy.

present company was formed with Brunner-Mond as managers.

The largest single customer for Magadi's soda ash is the glass industry. Around 150,000 tons is produced annually, and most of it is exported. About 2000 tons is sold locally for glass manufacture, and a small quantity is used for cooking and for making snuff.

Water Babies

HOW to give swimming lessons to 35,000 schoolchildren when the city has only two public swimming baths was the problem confronting Southampton's Department of Education. They have solved it, for the small children at least, by developing a portable bath.

The bath consists of a single sheet of ICI 'Hydex' pvc-coated nylon fabric which is fitted into a steel frame. Two people can erect it in 15 minutes ready for filling with water. It measures 20 ft. x 10 ft. and is 3 ft. high, can be emptied and dismantled in about 30 minutes, weighs 70 lb. and is light enough for one person to carry, and costs about £170.



Southampton Education Department tested a prototype of the bath in 1959 at one of their primary schools. By the end of the season over 200 of the 360 pupils could swim. Last year they had four of the baths in continuous use, and this summer they hope to have one in all their primary schools. (See pictures on page 97.)

Bouquet in Book Form

MANY readers will remember the "Modern Marvels" series of articles we ran in the Magazine. At the time it attracted a good deal of praise

from both inside and outside the Company, and now there is even more concrete evidence of its success. J. M. Dent & Sons, the publishers, have approached ICI seeking authority to publish the articles in book form as a commercial venture.

Permission has been given, and publication is scheduled for the autumn. Dents are giving full acknowledgment to the Magazine as the source of the material and have asked the Editor, **Sir Richard Keane**, to contribute a special foreword.

Incidentally, Sir Richard is also the author of a Foreign Affairs "Special" published some years ago by Penguins.

Fleck Award Winners

As we announced briefly last month the first four prizewinners under the Fleck Award scheme have now been named. They are **Jeanne Mallinson** (Dyestuffs Division), **Gerald Ramshaw** (Metals Division), **David Sandick** (Billingham Division) and **J. Eric Trembath** (Nobel Division).

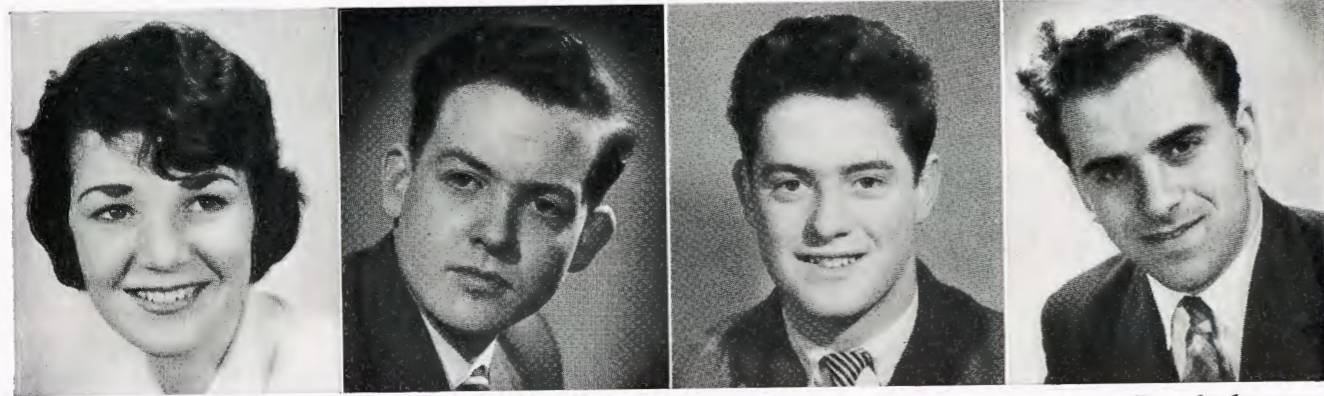
Miss Mallinson (18) is a clerk in the Production Planning Department at Huddersfield Works. She is a member of the Yorkshire County netball team and has represented Huddersfield for the past three years in inter-town competitions. She has also recently qualified as a part time youth leader in gymnastics and physical training.

Mr. Ramshaw (20) is a laboratory assistant in the Research Labs at Witton, and he is studying for the Institute of Physics (graduate class) examinations which he hopes to take in 1964. Last year he won Metals Division's S. S. Smith award for public speaking with a paper he presented to the Research Department's Scientific Society entitled "Science and Athletics." He is a member of Birchfield Harriers and was in the

BINDING OF 1960 MAGAZINES

The Kynoch Press has again agreed to bind *Magazines* and inserts for those readers who would like this done.

The cost will be 12s. 6d. for a volume of *Magazines* or a volume of inserts, and anyone who wants to take advantage of this offer should advise his *Magazine* correspondent now.



Miss Mallinson

Mr. Ramshaw

Mr. Sandick

Mr. Trembath

junior sprint relay team which gained second place in the 1959 national championships at the White City, and he has also qualified as a Class II football referee. On the less energetic side his hobbies include photography and music—he is an accomplished pianist and has taken part in many festivals and concerts in aid of charity.

* * *

Mr. Sandick (18) won the Billingham award from a list of 33 candidates. He is an apprentice fitter and is a part time student at the Stockton-Billingham Technical College, where he is an active member of the students' union. He is a member of Billingham Arts Association, a Sunday school teacher at Greatham Parish Church, and chairman of the Church's youth fellowship, of which he was a founder member. He is also on Greatham's Feast Committee organising the 500-year celebrations which take place later this year.

* * *

Mr. Trembath (20) is a final-year apprentice fitter at Tuckingmill Factory in Cornwall, which he joined in 1957. Two years ago he broke a leg playing football for Helston Athletic and was laid up for three months. Despite this injury, which prevented him from attending technical college, by working at home he passed his examinations for the Ordinary National Certificate for Mechanical Engineering the following summer. He is due to sit his Higher National Certificate next year and hopes to go on for his A.M.I.Mech.E. He is on the committee of the local Breage Institute and is a

member of the West Cornwall motor and motor cycling club, for whom he often acts as steward for rallies and trials.

Unique VC

SORTING out some old papers, Mr. Frank Cass, who works in the paint warehouse at Slough, came across this picture. It was one he had spotted in an old magazine discovered in an army canteen in Eritrea during the last war. He recognised the central figure, Lance-sergeant Oliver Brooks, VC, as a former commissionaire at the famous White Hart Hotel in Windsor. He cut the picture out and sent it home to his wife, thinking she might be interested.

Looking at it again nearly twenty years later, he realised that the Sergeant Brooks in the photograph was the father of one of his workmates,

Mr. Douglas Brooks, and he took it along to show it to him.

Mr. Brooks, who himself served in his father's old regiment, the Coldstream Guards, in World War II, tells us that his father was the only VC who has ever received his award outside Buckingham Palace. It happened in October 1915, when King George V, visiting the troops in France, was thrown from his horse and severely injured. While lying ill in the hospital train he expressed a wish to present the VC won at Loos by Brooks, who was brought to his bedside for the ceremony.

£111 Idea

AN Alkali Division road tanker driver, Mr. Sam Thomas, found himself more than £100 better off just before Christmas. And it was all because he thought of a way of saving himself and his workmates a lot of



A unique VC ceremony

ANCESTORS OF AN INDUSTRY—I

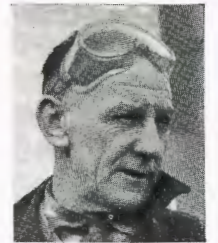


W. H. FOX TALBOT is universally acknowledged to have been the father of modern photography. Though he did not take the first photograph, he invented the Calotype process, which made it possible for any number of positives or "prints" to be made from a single negative. It is on this process that all modern photography has been built.

Born at Melbury in Dorset in 1800, Fox Talbot was a man with remarkably wide interests. Though primarily a mathematician, a subject in which he took an honours degree at Cambridge University in 1821, he was also a chemist, a botanist and a philologist. He spoke fluent French, and could read German, Hebrew, Gaelic, Welsh, Polish, Wendish (an obscure Slavonic language) and Russian. With Sir Henry Rawlinson he was a pioneer translator of the Assyrian cuneiform inscriptions. His mathematical attainments earned him the Fellowship of the Royal Society in 1831, and he represented the Chippenham Division of Wiltshire in the Parliament that passed the Reform Bill of 1832. In 1854 he threw open his patents on the Calotype process, taken out fourteen years earlier, and thus initiated the developments which have led from the daguerreotype to the great photographic industry of today.

trouble—and saving the Company quite a bit of money at the same time.

Before taking on a fresh load of caustic soda liquor at the weighbridge on Winnington Lane, the tankers have to be cleaned out with hot water. This meant a journey of nearly a mile to the water point at Winnington Weirhead. The water at this point was not always available when needed, and often access to this point was obstructed.



Mr. Thomas

Mr. Thomas, who has been driving tankers for the Division since 1936, had the idea that if a hot water point could be located near the weighbridge where loading took place and where in fact there was a steam main near at hand, it would cut out the extra mileage and delay.

When Mr. Thomas's idea went before the Division's Suggestions Committee with the support of his manager the committee made an interim award of £5 pending further investigation.

Figures were produced to show that the adoption of the suggestion would mean a saving to the Company of £222 a year. Although the management had had under consideration at the time ways of improving the method of washing out tankers, the committee decided that since Mr. Thomas had come forward with a sound and practical suggestion that was now being implemented he had earned the full award under the Scheme of £111.

Coloured Coppers?

THE part played by plastics in industry, the home and everyday life continues to grow, and news has come now of yet another possible use—coinage. In his annual report Mr. J. H. James, deputy master and controller of the Royal Mint, says the case for plastics is quite a serious one.

There is little doubt that plastic coins could be produced more cheaply than the lowest face values, Mr. James contends, and they would have advantages over metals in that they could

be developed in a variety of colours.

Their lightness could be held to conflict with the traditional conception of coins, but the practical argument of convenience might win in the end. A much more trenchant criticism, good for higher denominations, would be the relative ease of counterfeiting.

"If the modern feeling on coins is only that they should exist and be convenient, a plastic token is surely an ultimate answer—easy to carry, probably* durable, and very cheap to make. If there remains a longing for some intrinsic quality and value, where is the outcry against a currency exclusively of cupro-nickel, bronze, brass and paper?"

Drummed Out

DEAFENING hammering noise coming from the letterpress machine section of The Kynoch Press on 3rd January drew everyone's attention to the latest "drumming-out" ceremony. The victim, **David Darby**, had just completed his apprenticeship and has done so well during his study that he is already sitting for the final City and Guilds examination, an achievement few of his colleagues can claim in so short a time.

The ceremony of drumming out a printer's apprentice is a centuries-old custom, originating in the days when printers were granted the privilege, by Royal Assent, of wearing a sword. What usually happens is that the printer's imp (apprentice) is called to the Father of the Chapel accompanied by loud drumming by his colleagues on any available article. He is then daubed with ink and chalk, presented first with a snuff-box, then a sword,

*We would delete the word "probably."

and then given a nickname. Finally he is bundled into a trolley, run out of the premises and spilled into the gutter to denote that he has finished his apprenticeship. He re-enters the building a fully fledged journeyman.

Mr. Darby's chief hobby is politics, and in a few weeks' time he is off to Germany to attend the International Youth Conference being held at Sonnenberg.

Ancestors

WE plan from time to time to reproduce in these pages some of the biographies of men of science of the past which first appeared just after the war in a famous series of ICI press advertisements called "Ancestors of an Industry." They were later published in book form, and a new edition was brought out last year. To start with, since our leading article this month is on Ilford, the famous photographic firm, we have picked **W. H. Fox Talbot (1800-77)** the "father of modern photography."

Funds for Spastics

MR. **Jimmy Smith**, a storeman employed on Polythene works at Wilton, has been honoured by the Middlesbrough and District Spastics Association for the work he has done on their behalf throughout the area. For the past four years Mr. Smith has been organising and compèring variety shows for charity throughout the North-East, and we understand that these shows have raised around £22,000, which has been donated to the Spastics Association to help pay for a new wing for spastics at Middlesbrough General Hospital.

Through the Association he received an invitation to be presented to the Princess Royal when she visited Middlesbrough on 11th February to open this new wing at the hospital. Mr. Smith was representing all the local artists who had given their services free over the past four years.

APPOINTMENTS

Some recent appointments in ICI are: **Fibres Division:** Dr. P. W. Carlene, Technical Service and Development Director. **Head Office:** Mr. A. H. D. Barrow, Acting Head of Recruitment and Transfer

Section, Central Staff Department; Mr. J. E. Body, Acting Head Office Staff Manager. **Heavy Organic Chemicals Division:** Mr. E. F. A. Banwell, Works Engineer of the new HOC Division plants at Severnside; Dr. R. Whiteley, Works Manager of the new HOC Division plants at Severnside. **Nobel Division:** Dr. A. D. Lees, Managing Director (jointly with Mr. L. Hall). **Paints Division:** Mr. G. Costley, Personnel Director (in addition to his duties as Production Director); Mr. I. H. H. Donald, Secretary; Mr. G. Gilbertson, Personnel Manager; Mr. J. S. Gough, seconded from Central Staff Department for a year to work in the Personnel Department. **Arnold, Hoffman & Co.:** Dr. T. Richardson, President (in addition to his duties as a Dyestuffs Division Director).

RETIREMENTS

Some recent announcements of senior staff retirements are: **Paints Division:** Mr. C. A. Moffatt, Secretary and Personnel Manager (retired 28th February). **The Regions:** Mr. A. C. Everitt, Deputy Regional Manager, Midland Region (retiring 31st March).

IN BRIEF

Top again. Paints Division and ICI (Hyde) have won the ICI Inter-Division Safety Trophy for the year ending December 1960 after sharing the trophy with General Chemicals Division for the 12 months ending June 1960.

Safety measures for the Monte. "Terylene" car safety belts were much in evidence among British competitors in the 1961 Monte Carlo Rally. Over half the British starters had them fitted to their cars, the most popular design being the Britax single-strap diagonal belt.

First "Silver." A special award of £100 has been made to Mossend Factory (Billingham Division) on the completion of two million hours without a lost time accident. It is the first works in the Division to win one of the new silver plaques.

Plastics agreement. An agreement has been signed between ICI and the American Cyanamid Company, a major US chemical firm, granting the latter manufacturing rights in the USA for ICI's know-how on methyl methacrylate. ICI produce methacrylate products in the form of 'Perspex' sheet, rod and block and 'Diakon' moulding powders.

50 YEARS' SERVICE

The following employees have completed 50 years' service with the Company: **Alkali Division:** Mr. J. E. Harrott, Buxton Lime Works (15th February). **General Chemicals Division:** Mr. A. E. Jordan, Distribution Department, Widnes (26th January); Mr. H. Tomalin, Castner-Kellner Works (23rd January).

DR. CECIL CRONSHAW

Cecil John Turrell Cronshaw, a director of the Company from 1943 to 1952 and a leading figure in the dyestuffs world for more than thirty years, died in Manchester on 5th January.

Mr. C. Paine writes:

Born in June 1889 in Bury, Lancashire, of Lancashire stock, he was educated at Bury Grammar School and after a three-year apprenticeship in the testing house of the Manchester Chamber of Commerce he went on to Manchester University, where he took a first-class honours degree in pure chemistry. In 1915 he joined Levinstein Ltd. and so found himself plunged at once into the struggle to provide the wartime requirements of dyestuffs and organic chemicals. In the subsequent rebirth of the British dyestuffs industry Cronshaw was destined to play a leading role.

In 1916 Levinstein Ltd. had acquired the Meister Lucius and Brüning indigo factory at Ellesmere Port, and with it the responsibility of providing indigo for the dyeing of service uniforms. The factory had been built to operate on imported German phenyl glycine, and there was no equipment for making this at Ellesmere Port. Thus Cronshaw, as the new factory manager, was faced with an urgent and difficult problem. Manufacture of phenyl glycine was improvised at Levinstein's Blackley factory, and within three months the first batch of wartime indigo was made at Ellesmere Port. After the 1918 Armistice Cronshaw became chemical controller of the Rhineland area factories in Germany for a year. This experience undoubtedly broadened his understanding of the German organic chemical industry and of a number of the leading German industrial chemists.

In 1919 Cronshaw returned to England as assistant to Dr. Herbert Levinstein, the managing director of British Dyestuffs Corporation, which had been formed by the fusion of Levinstein Ltd. and British Dyes Ltd. of Huddersfield. Then for three years Cronshaw was works manager of the Blackley factory, where he became involved in the manufacture of some of the first rubber chemicals to be made in Britain on a commercial scale. In 1924 he was made technical manager of the British Dyestuffs Corporation, and when the Corporation became a "founder member" of Imperial Chemical Industries he was first technical director, then managing director, and finally in 1939 chairman of ICI Dyestuffs Group or, as it is now known, the Dyestuffs Division of ICI.

In 1943 he became a director on the Main Board of ICI and served in various posts on that Board until his retirement in September 1952.

* * *

This brief sketch of Cronshaw's industrial career conveys neither the essential flavour of the man nor the magnitude of his personal contribution to the British chemical industry. Small in stature, he bubbled with vitality in his heyday. Warm-hearted and generous in his encouragement of young chemists, he had a rapier-like wit and a mind of extraordinary quickness. Sometimes his thrusts were so rapid that he had no time to put the button on the foil. Nevertheless, those who knew him were never hurt by these thrusts; they were sometimes provoked as they were meant to be—provoked, that is, into action. Although he wrote and lectured about the industry he loved, this sort of thing was not really his forte. While he often had wise and sometimes original things to say, he did not seem wholly to believe in himself as a lecturer and therefore did not project from the rostrum the very vital personality which his colleagues knew and loved. He was undoubtedly at his most stimulating in the cut and thrust of personal discussion. Then his chemical enthusiasm and his imaginative approach to industrial problems were communicated in a most infectious way. Those who worked with him in the critical period between 1920 and the outbreak of the second world war readily recognised Cronshaw's leadership as the biggest individual contribution to the re-establishment of a dyestuffs industry in Britain comparable to that in Europe. He and his research director, James Baddiley, were the cornerstones in the new edifice. Cronshaw believed passionately in research as an essential basis for a vigorous industry, and he insisted on finance being found for it when times were far from easy. He believed that research should be exciting and vivid: as he put it, "There should be a catch in the breath."

Cronshaw was a man of wide interests and an unconventional reader. Everything he did he tackled with great zest and single-mindedness, whether it was business or beekeeping or sailing a boat. Whenever leisure permitted he might be seen at the County Cricket Ground or attending the Hallé Concerts.

In spite of his business responsibilities he gave freely of

his leisure time to scientific and technical societies and other public bodies. He was vice-president of the Society of Chemical Industry (1935-38), president of the Society of Dyers and Colourists (1939-46), and prime warden of the Worshipful Company of Dyers (1949-60). He served on the Council of Manchester University and was a governor of his old grammar school for many years.

Cecil Cronshaw was intrinsically a modest man, and the

honours which came his way were modest in relation to his performance. An honorary doctorate from the University of Leeds, the Perkin Medal of the Society of Dyers and Colourists, and a silver medal of the Royal Society of Arts were the kind of recognition he valued most.

Unhappily, failing health clouded his later years, marring his retirement. He will be remembered with pride and affection by his former colleagues as he was in his prime.

MR. LEONARD ARMSTRONG

John Leonard Armstrong, finance director of ICI from September 1952 until his retirement in February 1956, died on 7th January after a sudden heart attack while watching the Springbok rugby match at Twickenham. He was 68.

Mr. E. A. Bingen writes:

We may count Len Armstrong fortunate in the circumstances of his death, since he was an ardent cricketer, a keen golfer and a great supporter of rugby, but at the same time our deep sympathy goes out to his wife and family in his early death when on all the probabilities and his own fine record of health he had many years of life before him. Perhaps cricket was his greatest outside interest, and he played for Stockton in the North Yorkshire/South Durham League and later for Beckenham, where he gained the reputation of a canny and cautious all-rounder.

Len Armstrong was born at Cowpen Bewley, close to the present Billingham complex, but of farming stock, and all his life he retained his interest in agricultural affairs, taking up farming at Yateley after his retirement.

A mathematical scholar of St. Catharine's College, Cambridge, he took an honours degree in mathematics immediately before the outbreak of the first world war, obtaining his college colours in cricket, football and hockey. Articled to Sir William Peat of W. B. Peat & Co. (now Peat Marwick Mitchell & Co.) in August 1914, he held a commission in the Yorkshire Regiment (Green Howards) from 1915 to 1919 and saw active service in France and Belgium, being severely wounded at the battle of Messines in June 1917. After his demobilisation he returned to Peat Marwick Mitchell & Co. and qualified as a chartered accountant in May 1920, and while in the London office from 1925 to 1929 he was concerned with the audit of Nobel Industries Ltd. and the liquidation of that company subsequent to the formation of ICI. He joined the Treasurer's Department at the end of 1929 and was appointed an assistant treasurer in 1935, acting as treasurer throughout the war,

an office which he held (except for a short period when Mr. P. C. Dickens returned to ICI after war service) until his appointment as finance director.

Apart from being finance director of ICI, Len Armstrong held many other directorships within the ICI group, being for a time chairman of ICI (New York), a director of Arnold, Hoffman & Co., and, until his retirement, a director of Canadian Industries Ltd., in which capacity he was closely concerned with problems arising out of their segregation of interests from the Du Pont Company.

* * *

To be treasurer and then finance director of an organisation as complex and world-wide as ICI is no sinecure, but Len brought to his task a critical mind and a great capacity for work. Nothing slovenly ever got past his desk, and if he worked his subordinates hard they at least appreciated that he did not spare himself and was concerned to see that those who provided the background thinking were properly recognised. As a result of this he was successful in developing a really efficient team, who regarded him not only as their chief but as a personal friend and counsellor.

The only chartered accountant in a succession of Inland Revenue men who have made the grade as finance director, either in ICI or its predecessor companies, Len Armstrong made a real impact in ICI in the development of practices and procedures in the financial field which many of us now take as a matter of course but which would not have reached their present degree of sophistication but for his arduous devotion to duty.

March IN THE GARDEN

SEED SOWING

By PERCY THROWER

THIS month we welcome the spring; I think it is the most interesting season of the year, and certainly a busy one. This must be considered the latest for the planting of deciduous trees and shrubs of all kinds, and for planting roses; the planting of evergreen trees and shrubs can continue into next month, possibly the best month for planting such as these.

As we see the first signs of fresh green on the trees and hedgerows it is an indication to the gardener that the temperature of the soil is rising, and we must make the best of our opportunities to do seed sowing in both the flower and vegetable parts of the garden. When we see the dust blowing up from the roads and paths we can be sure the surface of the soil is drying sufficiently to enable us to make a good seed-bed, a very welcome sight.

The making of a seed-bed is one of the most important gardening operations we have to do; how it is done will make all the difference between success and failure. If we bear in mind what is necessary for the successful germination of seeds, it is a good guide. The three essential elements are warmth, air and moisture. If we watch for the soil to dry, when we firm the soil it will not go down too solid and exclude the necessary air; and if air is present we can be sure the soil will warm up reasonably quickly. Sufficient moisture will be retained, but not too much to prevent the entry of air and slow down the warming-up process.

The soil which has been dug over during the autumn or winter must be firmed, and this is best done by treading all over, pushing down the lumps, and at the same time breaking them up. Next the surface must be raked fine and even; fine, so that the tiny seeds will be in direct contact with the soil particles; and even, so that the water in the event of heavy rain will not lie in the low places. Before firming and raking some complete or general fertilizer can be spread over the surface, allowing a small handful for each square yard; firming and raking will mix this with the surface soil. The plant foods in the fertilizer will become soluble in the soil water, will find their way down into the soil and be there when the young plants require them.

Seeds to sow in the vegetable garden this month include broad beans, peas, parsnips, onions, lettuce, radish, Brussels sprouts and cabbage. All except the Brussels sprouts and cabbage will be sown where they will be left to mature, and enough space must be left between the rows so that every plant can get its fair share of light and air. Success will depend to a great extent on the spacing of the plants.

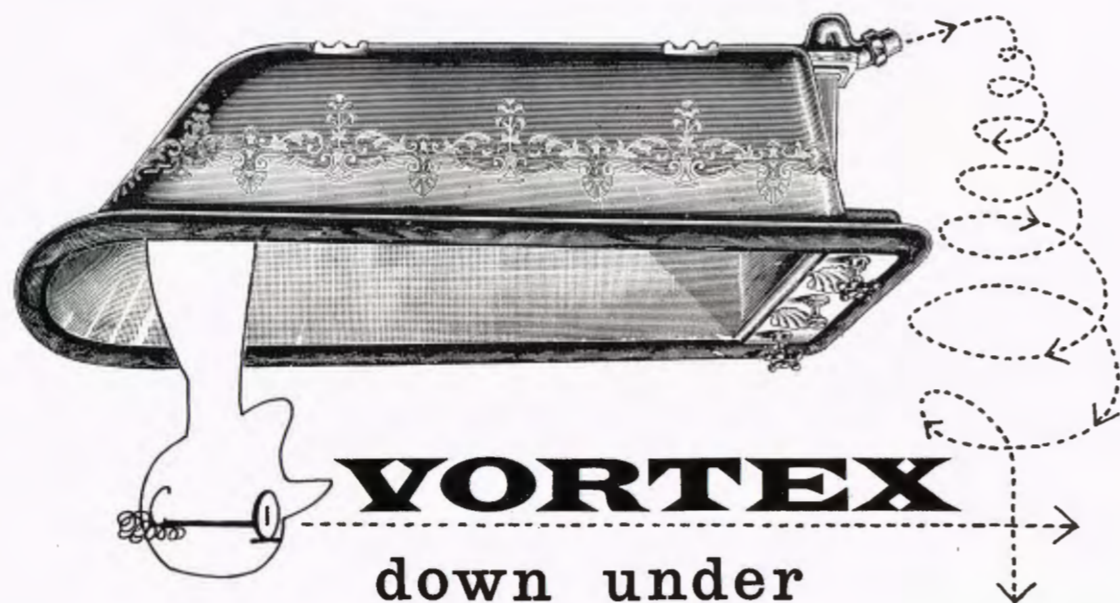
IPREFER to sow broad beans by making a trench the width of the spade and an inch deep, spacing the beans 9 in. apart along each side of the trench and alternate in the rows. For peas too I make a trench the width of the spade and a little less than an inch deep. I space the peas 3 in. apart along each side of the

trench and one row down the centre. There must be at least 3 ft. between the broad bean rows if more than one double row is sown. The distance between the rows of peas will depend on the height they grow; for those growing to 18 in. allow 2 ft. between the rows, those growing to 3 ft. or more allow 3-5 ft. between the rows.

Thus what might seem extravagant use of space need not be wasted: lettuce, radish and spinach can be sown between the rows and will not grow high enough to keep light from the other crops and in most cases will reach maturity and be cleared before the others reach their full height. Parsnips, onions, and other similar crops need 15-18 in. between the rows.

THE power-driven rotary cultivators are being used more and more these days; they save an enormous amount of hard work. Where these are available the spacing between the rows of vegetables should be enough to allow the use of a small cultivator between the rows. The rotary cultivator can be used for keeping down weeds as well as stirring the surface of the soil and so helping the growing crops.

The preparations for seed sowing in the flower garden must be just as thorough, and seeds of the hardy annuals can in southern districts be sown out of doors this month; in the colder northern areas sowing will best be done in April or early May. My favourites among these are sweet peas, larkspur, calendula, cornflower, annual chrysanthemum, linum and the pink lavatera.



Have you ever noticed which way the vortex revolves when you let the water out of your bath? A common theory is that, influenced by the rotation of the earth, the bath water flows out clockwise in Britain and anticlockwise in Australia. James Taylor, Chairman of Yorkshire Imperial Metals, makers of the copper tubes that dispose of bath water, took up the challenge to find out.

By James Taylor

Illustrations by Peter Kneebone

I'll let you into a secret. Whenever an ICI director makes a trip abroad he must write a report about it. To produce one which commands the attention of the Board is no mean feat, and in addition some at least of the subject-matter must be important, if not out of this world.

On a recent trip to the antipodes I was asked to investigate a topic which has interested the non-ferrous metals industry for some considerable time. I considered that I could possibly assist because I had given some study in recent years, as an erstwhile physicist, to the non-equivalence of parity and the paradox of the right- and left-handed universes. It seemed to me that a similar approach

could be applied to the problem which has exercised the copper tube trade, particularly that part of it which is concerned with the manufacture of domestic water service fittings (DWSF). This concerns the direction of rotation of the water contents of the domestic bath which run out through those same fittings.

The common theory is that the vortex formed by the water rotates clockwise (c.) in the northern hemisphere and anticlockwise (a.c.) in the southern hemisphere. This direction of rotation could have a close connection with corrosion in copper pipes. The subject was obviously of importance, since we already make DWSF in Australia and are proposing to erect a factory to manufacture copper

tubes in New Zealand. If the spiral motion of the water is reversed in the antipodes, it may be that the corrosion which occurs on the inside of tubes in Britain may be reversed to occur on the outside in New Zealand: this poses some very ticklish problems for the technical people.

Having agreed, at short notice, to carry out some researches during my trip, I naturally wished to make some first-hand observations in the UK before departure, and I initiated the research programme with enthusiasm. Apparatus for such work, I soon determined, was not costly. The best method of making observations is to fashion small paper boats, as children do, from a supply of non-absorbent paper, which is readily available, and place them near the edge of the whirlpool if and when it forms.

Like charity, which begins at home, I started chez-moi. Results were inconclusive, since my bath water hardly runs out at all, and certainly not in a spiral movement. In order to save the situation, as I thought, I made a quick trip to Yorkshire Imperial Metals, Leeds, the mecca of DWSF, so to speak, but the hole in the hotel bath was of such large diameter that the water ran out vertically, and there was no vortex either. The Boeing 707 in which we made the trip to Sydney, via America and Honolulu, didn't further my research, since there was no bath and no future in "topping and tailing" in a small basin at 35,000 feet.

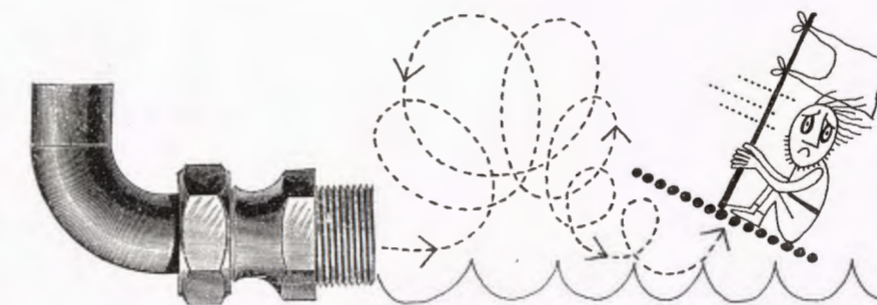
After 32 hours' flying I reached Sydney in fairly good shape, but tired and ready for a bath—not one bath, but many. Eleven ran out with a clockwise spiral, and three started clockwise and finished anticlockwise. In the absence of a Research Managers' Conference I found this a bit perplexing.

Two days later we went to Melbourne, but I'm sorry to say that like so many research chemists I lost my piece of paper and, having failed to retrieve it, I cannot remember which way the spiral went. It was with added zest that I took the next leg of the trip to New Zealand, where I looked forward to seeing the site of the new factory and to catching up with my research programme. Unfortunately some non-technical type must have arranged the accommodation and provided me with a shower. Time did not allow a trip to Rotorua to ascertain whether the hot springs ran back into the bowels of the earth c. or a.c.

Back in Australia we spent a day at a cousin's "station" at Gunnedah, north-east of Sydney. I don't think the station is beyond the "black stump," because there are baths there, not "Alice Springs," and the water ran out clockwise not once, but twice. Melbourne wasn't a write-off, however, because we went back again to see ICI House, and that would be something, even in Texas. Twice the bath ran out a.c. but once a.c., followed by c. towards the end.

On the return flight home we stopped off at Singapore and had two baths: the first was a.c./c. and the second c. all the way. At Kuala Lumpur (KL) the score was three a.c./c. and one c. all the way. Karachi yielded three c.'s and in revolt three c./a.c.'s. At Khewra Soda Factory we were provided with the biggest bathroom I have ever seen. The egress of the bath water was c./a.c.

On arriving in the UK I decided to brave the cold and the wet to make a pilgrimage to Scotland, where folks are logical and lost causes are considered with serious courtesy. I was tired, and I had a dose of flu coming on due to excessive bathing, having removed the fats and protective vitamins from my epidermis; but I was determined. It was my last visit to Nobel's as Group Director, and I resolved to go back to London cleansed in a last burst of exact and quantitative bathing. At the Royal Scottish Automobile Club, which had meant so much in my motor rallying days, I proudly pulled the plug, not once but twice, and got two magnificent a.c. spirals all the way. At the farewell dinner at Glenfoot the Nobel Division gave me a silver cigarette box and two baths, both clockwise. That decided me. In future I'm leaving research to the Research Director, and as soon as he has finished his present investigations on throwing eggs over house-tops to see if they break I hope he will take up the spiral movement of liquids from venting vessels.



INCOME TAX AND COMMON SENSE

By J. E. Davies

We asked our Taxation Controller to write a brief article on taxation problems which crop up not infrequently in conversation. He retorted with the Shakespearian quotation: "Let's talk of worms, and graves, and epitaphs; make dust our paper, and with rainy eyes write sorrow on the bosom of the earth."

MUCH has been said and written about the deficiencies of our taxation system, both as regards the law and the administration. It is an extremely difficult matter both to tax and to please, and shortcomings become immediately evident when the tax official fails to agree with the taxpayer. But despite that, our tax administration is generally recognised as the best in an imperfect world. That does not mean that there is no room for improvement, but only that the main complaints point to the law rather than to its administration.

Our troubles ultimately derive from the weight of tax, and that is a matter of national policy. If income tax, instead of being at the standard rate of 7s. 9d. in the £, were, say, 2s. 6d. or thereabouts, we would not be so interested in obtaining every possible trifling tax adjustment. Nor would there be the same need for so many of the 101 cumbersome relief provisions which have to be enacted in order to exempt bits and pieces. It just would not matter so much.

Even as things are it would be a mistake to think that our Income Tax Act compares badly with its foreign counterparts. Nevertheless, fault can easily be found with the present condition of affairs, leaving aside technicalities.

Once again the vexed question of the Schedule A, or Property Tax, is under discussion. We have MPs saying it is possible to own houses and not pay any Property Tax; and in some quarters it seems to be felt that there is something smart or wrong about this. It is quite straightforward; you will get help from the Inland Revenue to make a claim if you are a house owner, and the help will be freely given. Broadly all that happens is that, when your house is assessed, a deduction is made to cover repairs and maintenance, thus reducing the gross annual value on which tax is levied. But if you spend more than the fixed allowance for repairs and maintenance on an average of



five years, the excess is allowed as a further deduction. Thus, if your house is assessed at a gross annual value of £50, it is given a repairs allowance of £10, so that tax is collected on £40. If, however, you spend, on the average of the five years preceding, say £25 a year, you get a further £15 allowance.

As it is not difficult in these times to spend enough on repairs and decorations to cover the whole gross annual value, quite a number of people who own their houses do not pay this tax. Of course, these gross values at the present time are well below true annual values, and whether it will be so easy to spend up to the level of the new gross values after the proposed Rating and Valuation Bill comes into force in 1963 (if the Schedule A values should follow the rating values) is another matter. But there is no mystery about it, nor is there anything blame-worthy—no one in his senses, after all, will spend £1 in order to save the tax on it! Improvements to the property do not qualify.

Then there is another aspect of Schedule A. Should it be abolished? It is a relic of days long gone by when the surest way of assessing a man's ability to pay was by looking at his house as evidence of his wealth. But no other tax system in the world has the same feature. They are, of course, all much more modern than our own, which was the pioneer in income taxation.

The arguments in favour of abolition are that the tax is wrong in principle and in any event is not very productive when one considers the trouble of collection, the maintenance claims, and so forth. Properties used for commercial and business purposes have the tax collected set against tax on the profits of the business, so there is little effect beyond the creation of more work. So far as rented properties are concerned, the landlord is already taxed on rents to the extent that they exceed his Schedule A assessment. It is therefore only where the owner-occupier is concerned that there has been much argument, some of it political, and it seems there has been some confusion of thought.

It is sometimes argued that if a man buys a house he is saved from paying a rent, so he is better off to that extent; he may have sold shares to buy the house, and he has merely changed the form of income. So on these grounds

he ought to pay tax on the income it would produce. But of course what he has really done is to change from one form of wealth which produces actual cash income to another form which produces enjoyment but no cash income; and the fact that he could hire (or rent) out his form of wealth is beside the point. Why, of all the assets which a man desires to own, pick on a house? You might just as well assess the owner on the annual rentable value of a piano, a car, a picture—assets which the tax authorities are content to deal with by way of death duties!

A great deal can be said about the treatment of married couples. We give a married man a somewhat higher personal allowance than a single person; and if the wife is earning income we give her a special earned income allowance also; and then if there is a family there are the child allowances, and these are very acceptable. But once these allowances are used up, the "slab" system of tax comes into force, and as the taxable income rises so does the rate. This has no small effect, although it is most pronounced naturally enough in the higher ranges of income.

Now in the USA, Germany and other advanced countries they do not believe that two can live that much cheaper than one. There the income can be split so that each gets the treatment applicable to a single person against the income as divided. In other words, the couple pay twice the tax on half the income. Take the simple case of a married man earning £1000 a year with no other income belonging to himself or his wife. He now pays (to the nearest £) £153. Split his income for tax purposes so that each is treated as a single person earning £500, and each would pay £49. Double it, and twice the tax on half the income is £98. Going higher up the scale to a man earning £3000, the figure he now pays is £856. This would become £685.

It is rather thought-provoking. It is permissible for a man to divest himself of his income provided it is done irrevocably and he satisfies certain legal requirements. If he does so he no longer pays tax on the part he has handed over, provided the income is not passed to his wife or, incidentally, to his own acknowledged infant unmarried children. But if the couple had forgotten to get married all would be well. Often the courts have quoted the famous saying that "income tax and equity are strangers." It seems that income tax and morality are enemies!

Heavy taxation puts a great strain on morality in many other ways. No one likes paying it much, and it is not



unreasonable to attempt to minimise it. The legislature has no objection to this, providing one avoids tax and does not evade it—a distinction which is more than a little puzzling to many people. A taxing act must be taken to mean exactly what it says, otherwise a taxpayer will not know where he stands. It is no use saying that because an act includes one thing and not another it is not fair—unless you can say it in Parliament, preferably with a majority behind you. But once it is clear and the finger points directly at you, you have to pay: if you then dodge it, it is evasion and you are on the wrong side of the law.

You must not, for instance, take cash out of your till without recording it for tax, nor receive pay for casual labour without returning it for any due tax which ought to fall upon it, nor, in fact, conceal any items of income upon which the charge falls. But the taxpayer is entitled to take all steps within the law to cut down his tax. A famous judge once remarked that no man is bound to arrange his affairs so as to permit the Revenue to put the largest possible shovel into his stores. So he does what he can to arrange matters so as to attract the least liability. This is avoidance, and it is an important factor in deciding his investment policy and the disposal of his income, and indeed it often has a powerful influence on the direction of his activities.

Obviously if Parliament in its wisdom decides that some methods of avoidance defeat the real intention of the Act, the remedy is to alter the law, and this is often done. We had an outstanding example in the so-called dividend stripping clauses of the last Finance Act.

What should be pointed out is that the principle that the law says what it means, if you can clearly perceive the meaning, cuts both ways. It may have been noticed that a few weeks ago the Court of Appeal held that although a certain item of foreign income of ICI had to form the basis of assessment for taxation for two successive years it could only have relief for foreign tax once. The argument was somewhat technical, but the result was two assessments and one relief because the law was held to say so.

On the whole it must be said that with a certain amount of creaking by the tax machine, and rather more groaning by the "customer," the over-large harvest of direct taxation is brought in pretty well. But it is felt by many that there are definite shortcomings in the general scheme, quite apart from a number of the more technical faults which the authorities seem too slow to correct.



'Drikold' Expert

THE question "What is your job?" set Raymond Frederick Sweeting pondering for a moment. "Technical Sales Service . . ." that part was easy; but the last word? Was it representative or adviser? When he had told me his story, we settled for *adviser*.

But in fact Ray Sweeting ought to be called *Mr. Drikold*. His headquarters are at Billingham, and his job is to advise on the use of this unique product: ICI's brand of solid carbon dioxide, sometimes called "dry ice." 'Drikold' is produced in blocks, ten by seven and a half inches square, at a temperature of minus 110° Fahrenheit: that is, 142° F. colder than ice. Unlike ice, it evaporates without melting, leaving no trace behind.

It is used first as a refrigerant; secondly as a source of pure carbon dioxide: "That is to say," Ray Sweeting translates, "to put fizz into pop—mineral waters, you know."

Sweeting himself, a man in his mid-fifties with greyish hair and a heart-warming smile, is mainly concerned with the use of 'Drikold' as a refrigerant, particularly in the transport of perishable foods—ice cream, frozen foods, meat; not to mention jellied eels, fresh strawberries, yeast and cheese.

There are other refrigerant uses: such as are found in laboratory work, the freezing of water pipes to facilitate repairs, and what is delicately called "pre-burial sanitation"—that is, the preservation of bodies before burial. Ray Sweeting once had a call from a funeral director who wanted to know how to use the stuff. As 'Drikold' is of course a wasting product and can't be stored indefinitely, he asked: "When is the funeral?" The customer replied: "Oh, he's not dead yet. The operation's today, and I just want to be ready."

* * *

Another remarkable enquiry came from a gentleman whose hobby was showing prize dogs, which he transported across country in the boot of his car. On sultry days the animals arrived dishevelled and panting. Couldn't a block of 'Drikold' be packed into the boot to relieve their suffering? The would-be customer was disappointed to learn that with the little control he was prepared to undertake it would be more than likely that his cargo would arrive frozen solid. A rather similar enquiry was that of a military gentleman who, with laudable concern for the comfort of his old regiment, wanted to tuck 'Drikold' in their bearskins.

As you will see, there is plenty of scope in the job of

advising customers how best to use 'Drikold' efficiently and at a reasonable cost. The latter point is important, because 'Drikold' is faced with strong competition. It is important to know how to handle and store 'Drikold,' remembering that it starts to evaporate as soon as it is made and requires special packages and insulated bins for storage.

Then there are the urgent enquiries on the telephone. In midsummer these are apt to make life hectic indeed. Everyone in England seems suddenly to become obsessed with the desire to cool vast stocks of butter or to make sure that the beer in the cellar is cold enough even to satisfy visiting Americans.

Next, there is the writing of sales literature. Sweeting has the knack of presenting essential facts clearly and without embroidery: an invaluable gift in this part of his work. He is also responsible for lectures during instructional courses to sales representatives.

* * *

Ray Sweeting's job is part chairborne, part mobile. He has travelled as far north as Wick and as far south as the Scilly Isles—nearly always accompanied by a sales representative—to meet customers and discuss their problems. Perhaps a fruit grower needs advice on how to apply the refrigerant in vans carrying fresh strawberries (which must be no more than cool), or Birds Eye may wish to transport frozen foods (which must be kept at a much lower temperature). Or perhaps Mac Fisheries seek help in transporting container loads of frozen fish from Aberdeen to London. There is no monotony about this part of the job: there was, for example, a request for assistance in transporting "Kangaroo trimmings" to an address in Ascot. No further details were proffered, but Sweeting succeeded in supplying the circus lions and tigers in their winter quarters with kangaroo meat at just the temperature they prefer.

'Drikold' was first marketed in 1931, and Sweeting—trained as an analyst, and on ICI's staff since 1927—has worked with the product since the year after it became nationally available. Though he has help from the laboratories and an engineering section to deal with special cases, his is virtually a one-man job.

He's a married man with one daughter, and at home in Linthorpe has as hobbies gardening and colour photography. But in my opinion he lives, breathes, thinks and dreams 'Drikold'—a man with a life-interest which is a good deal colder than charity, but much more interesting.

NEWS IN PICTURES

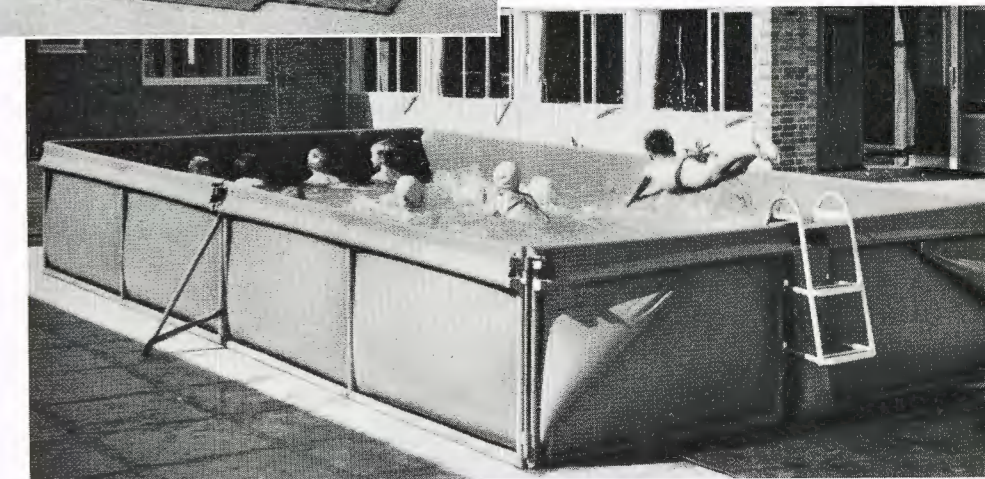
Home and Overseas



India and Pakistan visit. Mr. S. P. Chambers, ICI Chairman, visited India and Pakistan between 29th January and 19th February. During his trip he visited the Calcutta headquarters of ICI (India), where he presented long service awards to forty employees. *Above:* Mrs. Chamelia, of the Alkali and Chemical Corporation of India, Rishra, the first lady recipient from Calcutta, receives a 15 year award from Mr. Chambers. *Right:* Mr. and Mrs. Chambers with Mrs. Lall (*left*), wife of the chairman of ICI (India), passing through the specially decorated gate on their way to watch the sixteenth annual athletics meet in Calcutta and to make long service presentations. Later they travelled to Delhi, Bombay, Madras, Colombo and Karachi. While in Karachi as the guest of ICI (Pakistan), Mr. Chambers met several members of the Pakistan Government and leaders of industry



Portable pool. Southampton Education Department has developed this portable swimming pool for its primary schools. *Left:* The steel framework. *Below:* The pool completed, with the water container made from a single flat sheet of ICI 'Hydex' pvc-coated nylon fabric manufactured by ICI (Hyde) Ltd. and filled from a 6 in. 'Hydex' hose. (See also page 83.)



New tower. One of the most recent additions to Wilton's skyline is this 105 ft. supporting tower, comprising some 3000 separate parts, which was constructed in Wilton Works' central workshops. It is a 12½-ton triangular tubular steel tripod and is part of an extension programme to enable nearly 20,000 extra tons of nylon to be made annually by the north-east coast plants of Dyestuffs Division



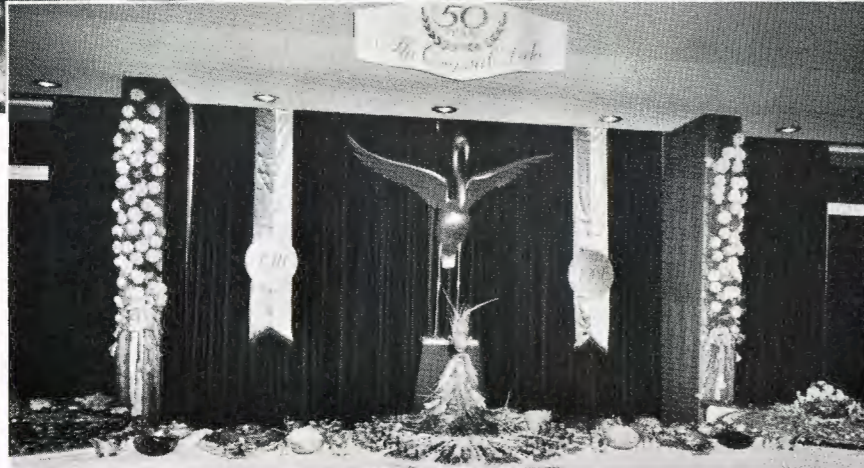
Rallyist. Mr. B. L. Field, dyestuffs sales manager for South Wales (*far left*), was a member of the Welsh team in the Monte Carlo Rally which in their Riley 1.5 covered 2300 of the 3600 km. without penalty. In the Auvergne an encounter with a snow-filled ditch lost them vital time, and a gallant first attempt was recorded as "abandoned at Le Puy"



New look. All ICI garden products are appearing in redesigned packs this spring. Here is a selection of the new-look range. Light and dark blue—traditional ICI colours—have been chosen as the main colours, with a third colour added to help distinguish the different products—for instance, red for 'Sybol' and green for 'Verdone'



Magadi celebrations. It was a memorable day for employees of the Magadi Soda Co. Ltd., Kenya, a subsidiary of ICI, when on 26th January they celebrated the company's golden jubilee. A variety of entertainments were held at Lake Magadi for the 3000 residents who live and work there. Above: The Masai chief and his party enjoy ice creams while watching the show. Right: A splendid buffet table at a cocktail party held in Nairobi two days later to which some 200 guests were invited. (See also page 82.)



Quick action. Billingham Division road transport driver Mr. F. W. Cook has won praise from the chief fire officer of Nottinghamshire and from the Company for his quick thinking. When seeing two crashed vehicles in danger of burning out, he used some of his cargo of liquid carbon dioxide to smother the fire

Pole vaulter Jim McManus, who last July was in the Great Britain B team which beat Belgium in the North East's first international athletics match at Billingham, has now joined the Division and is a member of the Synthonia Athletics Section



'Perspex' Jubilee. It is 25 years since the first commercial sheet of 'Perspex' was cast at Billingham Division. Here a group of the pioneers, all now at Wilton, gather round a model of the original apparatus used in the manufacturing process. From the left: Messrs. A. Burness, R. H. Povey, H. Salter and J. Jackson



Fire! Fire! This team of enthusiastic girl fire-fighters armed with buckets and stirrup pumps are among the first women of Brunner House staff to volunteer for Alkali Division's Civil Defence organisation. They are (left to right) F. Wilkes, P. Bellis, D. Denson, M. Figgins, J. Batsford, E. Bowyer, S. Millington, W. Bowden, R. Lamb and J. Anderson



Humphrey Lyttleton, Old Etonian, ex-Guards officer and top hot jazz trumpeter, is greeted by Mr. A. J. Crosland of Wilton Works Castle club before he and his five-man ensemble blast their way through an evening of jazz classics



Gold awards won by Colin Sander and Peter Fisher of Metals Division under the Duke of Edinburgh's scheme were gained through their work with the St. John Ambulance Brigade. They received the awards at Buckingham Palace recently



Mountain rescue. This spectacular picture was taken by torchlight during a mountain rescue exercise which was part of the advanced Discovery course for youths, recently organised by Billingham Division. Mr. R. Teigh, a trainer from the Education Department, was the "patient," and here John Fletcher, an apprentice fitter, keeps the stretcher level, guiding it down the rock face while three of his colleagues at the top pay out the ropes



Reluctant hero. It was only after lengthy enquiries that the rescuers of two drowning children were recently traced. One of them was James Lee, 19-year-old lab assistant at Billingham Division, photographed here by the *Sunderland Echo* receiving a Royal Humane Society testimonial from Mr. G. C. Park, the chairman of the county magistrates. The girl he rescued was thought to be dead when he got her back to the beach but recovered and was taken to hospital



WE DON'T WATCH — WE PLAY

Britons have sometimes been accused of becoming a nation of spectators. Has that trend now been reversed? Denzil Batchelor produces statistics suggesting that it has, because of the rise in popularity of individual sports not involving organised teamwork. Sailing, golf and badminton, in that order, head the list of sports on the up and up.

By Denzil Batchelor

Golf. 50,000 more players in last five years.
Schools now teach it

THE great reproach to sporting Britons during a period lasting from the end of World War I to the mid-fifties was that they were a nation of spectators. The most remarkable trend in the sixties is that the sons and younger brothers of those spectators have become participants.

The change started between five and ten years ago, and has markedly increased recently. By and large, it represents not only a swing from a passive to an active rôle, but also from team games to sports calling for individual participation: sailing, golf, badminton—in that order—head the list of sports on the up and up.

It must not, however, be assumed that team games have lost *all* hold on public interest. It is true that in the first two months of the present season League football gates have decreased by between one and a half to two million—but it must not be forgotten that admission charges have been increased from 2s. to 2s. 6d., in some cases to 3s. Thus, since the 15% drop in attendances must be set against a 25% increase in admission charges, it cannot be maintained that public interest in League football has entirely evaporated. Nevertheless, gates will probably be down by 8 million on the season—just as last year's cricket gates were down by 500,000 on attendances five years ago.

All the same, more and more young men are playing amateur football at every level. The Football Association controls over 25,000 amateur clubs. A million amateur footballers go into action every Saturday afternoon.

But striking as these figures are, they are less impressive than the statistics of the new do-it-yourself brigade who have become participants in individualistic as opposed to team games. In the past five years 250,000 men and women have taken up sailing: twenty times as many as went in for it at the beginning of the period under review. Ten years ago the Central Council of Physical Recreation gave three instructional courses attended by 40 pupils in all; this year more than 2000 will take these courses. The formation of the Schools' Sailing Association is a portent, but it is remarkable that in this sport at least all the converts

do not belong to the 16–21 age-group, who are the pioneers in the new trend. The CCPR finds many 60-year-olds taking to the sport for the first time.

Golf is booming. There are 50,000 more exponents than there were in 1956. The game is particularly well served in a missionary sense by the Golf Foundation, whose prime object is to introduce it into schools. It started in 1952 with five schools, and today it has more than 500 (with over 12,000 players) on its list. Last year the Foundation embarked on the plan of giving instructional classes to juniors.

Twice as many people ski today as did five years ago. There are dri-ski training centres all over the country, and the Ski Club of Great Britain co-operates with the CCPR in teaching and training young people who propose to spend active holidays in Norway, Switzerland, Italy and Austria. Travel agents compute that



Wilton Golf Course—an outstanding example of a golf course catering for the golfing boom. It has 552 members, of whom 251 are drawn from the payroll and 301 from the staff of ICI. Subscription is £2 a year or 10d. a week for members of the Wilton Recreation Club

THESE SPORTS ARE ON THE UP-AND-UP



Sailing. Twenty times more people do it than five years ago. A quarter of a million people now sail



Athletics. More and more people are taking it up



Ski-ing. Twice as many skiers as five years ago. Dri-ski training schools established in the big cities. 50,000 skiers go abroad every year

between 50,000 and 60,000 go abroad every year. Young people can get a fortnight's ski-ing holiday for as little as £25 or less: an average figure would be £45-£50. Expensive equipment, including skis, is of course hired.

Horse-riding, like ski-ing, has doubled its devotees in the past five years, largely due to the work done by the pony clubs, with a world-wide membership of 60,000 up to seventeen years of age. Nowadays the club no longer appeals solely to teenage girls as it seemed to in the fifties. A hundred and sixty riding clubs cater for adult members, charging a guinea a year and perhaps 10s. for a weekly ride. A new development is night instruction classes at local institutes.

Athletics, swimming, table tennis, badminton and fencing have between them added 150,000 active participants in the past five years. In the case of badminton the increase in popularity is checked only by the shortage of available courts—there would be tens of thousands more badminton players if there was anywhere for them to play.

A Million Anglers

And the most popular participant sport of all? It must surely be angling: there are said to be more than a million anglers engaged in sea fishing all the year round (without a licence), game fishing from spring to autumn, and coarse fishing from summer to spring, the exact seasons being determined by the local river boards.

Mark well, not every sport can point to an increased popularity: boxing and, alas, cricket are among the backsliders. Strangely enough, lawn tennis, though

increasingly taught in schools, has also lost popularity with the general public. The number of public courts under the control of local authorities decreased from 10,197 in 1939 to 8298 in 1958, the last year for which figures are available, and the use made of those that remained decreased too. In 1949-50 the number of registered players using London County Council courts was 29,881: in 1957-58 it was 15,638—a decline of nearly 50% in nine years. The creation this year of the Lawn Tennis Foundation should do much to revive public interest.

New Trends

Very well, then: playing rather than watching has become, and is increasingly becoming, the rule in Britain. Why is this, and where will it lead us?

The first question is the easier to answer. To begin with, it should be noted that the trend to participant sports is most marked among ex-public school boys, grammar school boys, and young members of the professional classes. The working-class lad on reaching school leaving age is a little less apt to fill his spare time with sporting activities and a little more ready to spend it on the care of his bike or the garden, or on do-it-yourself jobs in the home. Perhaps it is because the public school or grammar school boy has already had his fill of the discipline of organised sport that he turns to activities in which he can try out his individual strength and skill rather than to games in which at best he feels himself a member of a team, and at worst a cog in a machine.

Certain it is that the young man and woman of today are going to develop their sporting tastes without fears



Angling. The most popular sport of all. One million participants



Badminton. Increasingly popular, but checked by shortage of courts



Pony clubs. Membership doubled in last five years. Night classes now available at several local institutes

that they will not be able to afford to follow their bent. The youth's father, as a young worker, could just about afford the price of admission to watch the local football team: hence his subsequent loyalty to the home club. But the young man of today can afford to buy a fully operational 7 ft. dinghy for £50, perhaps even a General Purposes 14 for £160. If he wants to economise, he knows that he can save up to 30% or 40% of the cost of his boat by buying a kit and putting it together himself.

If he decides to take up golf, he knows that he may have to pay £50 for his bag of clubs: but there are professionals who will sell them to him on hire purchase. It is not difficult to find a municipal course where he can get a round for 2s. 6d. or 3s.

Shortages to be Tackled

But many problems remain. Are there, for example, enough badminton courts for the new entry? Aren't all the golf links chock-a-block every week-end? It is clear that while we continue to think in terms of *turf* we shall be in trouble: obviously there will not be enough to go round. Substitutes must be found, and—although there is scope for much more work on the subject—they are already being found. *Redgrass* is one, others include a number of bituminous surfaces. But even if you had as many running tracks, tennis courts and even football pitches as you could hope for, there would still be queues waiting to play. You immediately order more floodlighting—only to find that this does no more than touch the fringe of the problem.

The plain fact is that there are too many sportsmen

chasing too few playing fields *on too few days of the week*. Many a golf links, teeming with life on Saturday and Sunday, is all but deserted from Monday to Friday. The same applies to lawn tennis courts.

Again, what about the sports fields owned by public and other schools? These remain unused for four months of the year. Is it, as some suggest, essential that they should do so for replanting and reconditioning, or are these open spaces so much national capital jealously locked up?

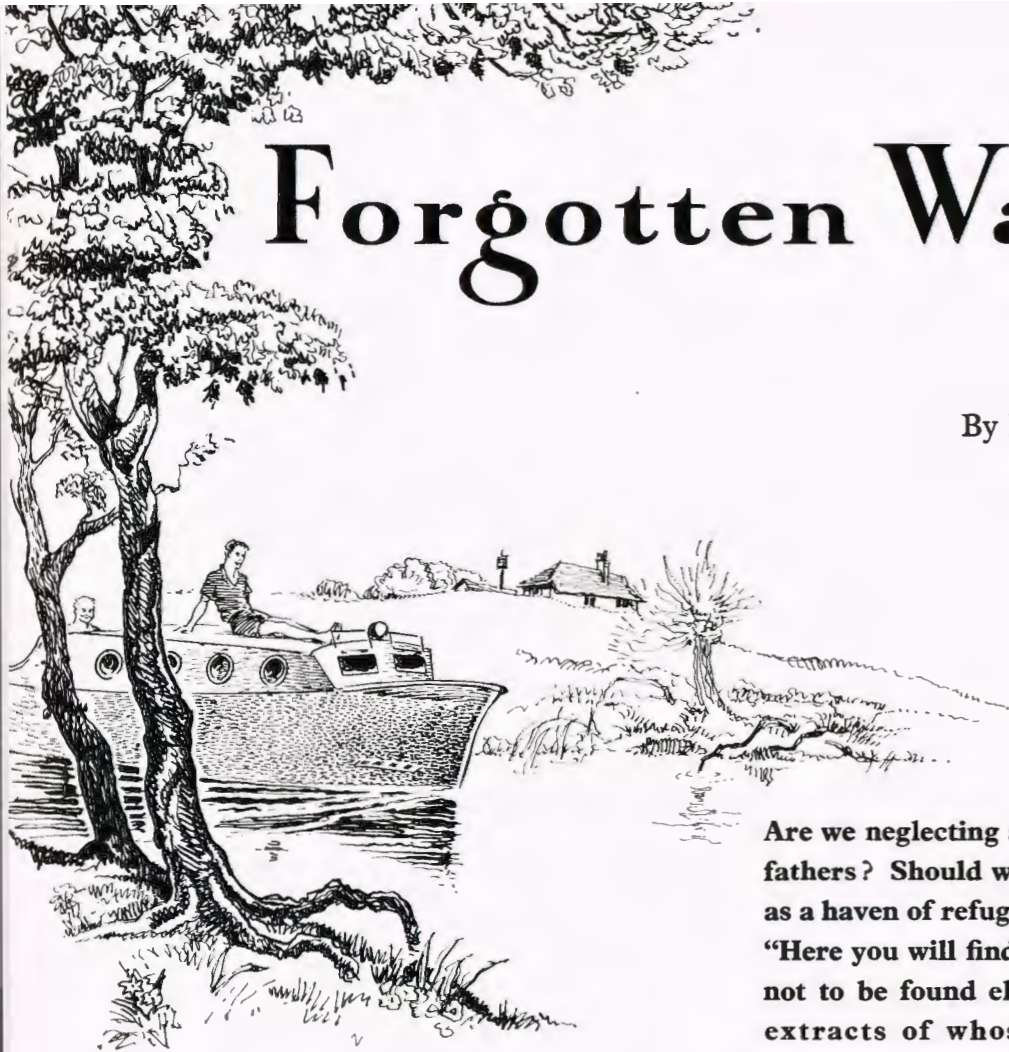
National Effort

One thing seems certain: the problem of giving the millions of sports-loving Britons the opportunity to enjoy themselves as they please must sooner than later be tackled on a national level. A possible solution, urged by Sir Stanley Rouse, is to insist that the luckier clubs and foundations should make their facilities available to players from outside the establishment in off-peak periods. Another suggestion that has been mooted is that the two holidays of the week-end should be staggered during the week to ensure that the chance to enjoy whatever sporting facilities the nation offers is as widely spread as possible.

On 3rd February it was made known that the suggestion proffered by the Wolfenden Report to the Government for £10 million to be made available annually for the nation's sporting needs was refused. In the circumstances, those who control sport are probably thankful that the chief increase in public interest in our tight little island remains centred on sailing. There, at least, you have the sea to fall back on—or into.

Forgotten Waterways

By Derek Clements



Are we neglecting a priceless heritage from our forefathers? Should we not make more use of our canals as a haven of refuge from restless, industrial Britain? "Here you will find a sense of peace and of adventure not to be found elsewhere," writes Derek Clements, extracts of whose diary are published below.

An ex-bomber pilot, looking every inch the part, has invited me to spend my holiday with him and his family on a canal cruise. He has bought an airborne lifeboat and by much hard work and considerable ingenuity has converted it into the ideal canal cruiser. The boat is flat-bottomed, the draught is light, and the propeller is recessed in a tunnel. To prevent weeding up he has his own specially designed closed-circuit cooling system. My conception of a canal has taken on a new meaning.

* * * *

Built for a community entirely unknown to us, canal-side inns have an air not to be found elsewhere in Britain. Mostly it is of days gone by, with a dominating smell of old blue leather, steeped for decades in strange local brews. Today we were lucky enough to find an inn almost unchanged since the days when

the canal was first constructed, its knot of distinctively dressed watermen swapping yarns in a corner. "You'll be from the cut," said the landlord, with instantaneous recognition of a traveller from the canal, or "cut" as it is called. This recognition is the hallmark of an experienced watermen's innkeeper.

* * * *

The warning came from one of us who had been awakened by the barely perceptible but tell-tale forward and backward movement of the boat against the ropes which always heralds the distant approach of a narrowboat. "Quick—on deck and keep the boat off the bank!" someone shouted. Shivering slightly in our pyjamas, we scrambled up the narrow ladder to the roof deck and seized an oar each. As the narrowboat drew abreast, a tremendous swell overtook us. It was



The converted airborne lifeboat negotiates the hazards of a canal lock and bridge. These lifeboats were slung beneath bombers like the Shackleton and dropped for the rescue of shot-down aircrews. The lifeboat shown here is the Mark 3, an aluminium vessel designed by Saunders-Roe



A canal journey through the Midlands

THE CANALMAN'S LOVE OF COLOUR



The Pride of a Canal Boat is fresh gleaming paint—especially the watercan, traditionally found spout facing forward in a prominent position on the cabin roof. Most narrowboats are brightly painted, the traditional design being roses and castles. Unfortunately many of these patterns have been obliterated in recent years by the yellow and blue of British Waterways.



Tight squeeze. There was only just room for two in the lock as the converted airborne lifeboat squeezed past a narrowboat

as much as the three of us could do to keep the stones which lay just below the bank from piercing our hull.

The wash of a narrowboat in the restricted width of a canal has to be endured to be believed. Narrowboats are barges specially designed for the smaller canals. Up to 70 ft. long, they fit in the single-gate locks like a refill into a ball-pen. Almost invariably they tow a second barge, known as a butty. Normally the husband steers the first barge and looks after its engine, while his wife steers the second in addition to looking after the children and keeping the living quarters spotless and the copper and brass gleaming. The pride of every boat is its painted water can. These are traditionally kept spout facing outwards on top of the cabin roof.

* * * *

With the sense of remoteness conveyed by a canal journey such as ours and the absence of the incessant clamour of civilisation, the countryside comes once more into its own. As you float along in silence, you lie on your back and watch the hedges and trees glide

slowly past. Occasionally you stand on the roof deck and blow a bugle before turning a blind corner to warn any approaching boat to slacken speed.

* * * *

A staircase is a series of locks leading one into another. At Foxton, near Market Harborough in Leicestershire, a most interesting construction once existed. By the side of the staircase lie the ruins of a gigantic inclined plane. This was built to haul narrowboats sideways up the hill in huge caissons filled with water. There were eight rails to hold the weight of the barges and a steam donkey in a power house to do the winding.

Although this method speeded up the time taken by a narrowboat in going from the lower level of the canal to the summit, it was abandoned at the turn of the century because of mechanical breakdowns and the expense of maintaining a head of steam all day. Now only the massive foundations of the power house and the inclined plane can be seen, fast being swallowed up by a tangle of undergrowth.



Pothole, Casterton Fell, North Lancashire

Photo by Dr. J. M. Woolley (Dyestuffs Division)